



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: CLEANING PRODUCT			
(57) Abstract  A composition which comprises citrus oil and a solubilising agent having a HLB value above (10) can be mixed homogeneously with water to give an effective stain-removing product, as a liquid or impregnated in a carrier, containing only a small proportion of the effective ingredient, e.g. orange terpenes.			

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CLEANING PRODUCT

This invention relates to products for use in cleaning, and especially for stain removal.

Citrus oil is useful as a stain remover. Citrus oil, e.g. orange terpenes, the residue of extraction of perfumery products from citrus fruits, dissolves and thus removes ink or other stains from the skin or from clothing.

The properties of orange terpenes have been utilised in cream formulations, e.g. as sold under the trade name Ridd. In order that they should be effective, creams of this type contain at least 40% w/w orange terpenes, in addition to emulsifiers etc. The need for such a high concentration of the active ingredient is an economic disadvantage. Apparently, there has been no commercial use of citrus oil for some time.

For industrial and home use, hand cleansers intended to remove oily stains are usually now in the form of a gel including a paraffinic solvent. Such cleansers are merely functional.

It is known to absorb liquid in an absorbent matrix, in order to facilitate topical application of the liquid. For example, aqueous compositions comprising an antiseptic and a small concentration of a perfume, absorbed in a serrated roll of non-woven paper material, are available in a dispenser for tearing and application as individual "wipes".

A composition according to the present invention comprises orange or other citrus fruit terpenes and a solubilising agent which has a HLB value of at least 10. It has been found that orange terpenes, in such a composition, can satisfactorily be put into solution in a composition comprising predominantly water.

It is of course often the case that the user would prefer to apply a stain-removing composition in a

non-liquid form. For this purpose, an aqueous composition of the invention can be absorbed in a suitable carrier, e.g. a non-woven paper or other fabric, as in conventional "wipes".

5 It is a surprising and desirable characteristic of the invention that the products of the invention provide the effective properties of, say, orange terpenes at an economical level, i.e. at less than 20% w/w, more preferably less than 10% w/w, of the aqueous composition.

10 The minimum level of terpenes in the aqueous composition is usually 0.5% w/w, and preferably at least 1% w/w. As a further advantage in economy, non-aqueous compositions of the invention are storage-stable concentrates well adapted to mere dilution with water, for further use.

15 Because the terpenes are insoluble in water, the solubilising agent used in the present invention is an essential component. The HLB value of this agent is preferably from 12 to 18, e.g. 13 to 17. Examples are polyoxyalkylene ester copolymers, e.g. polyoxyethylene  
20 fatty acid copolymers such as Polysorbate 20 (HLB 16.7) and a polyethylene glycol mono-ester having a molecular weight of about 600, which is a wax-like non-ionic surfactant, e.g. as sold under the trade name Cithrol 6MS (HLB 14). The weight ratio of this component to the  
25 terpenes may be, for example, 0.01:10, 0.05:5 or 0.1:1.

A mixture of HLB>10 surfactants may sometimes be preferred. In order to facilitate the formation of a homogeneous composition of the invention, a HLB<10 (e.g. 2 to 8) material may be used, e.g. a polyol ester such as  
30 glyceryl monostearate. Another desirable additive is an amphoteric surfactant such as a low viscosity coconut imadazoline betaine, e.g. as marketed under the trade name Empigen CDR10, a product having a viscosity of less than 500 c/s at 20 C, which is a mild surfactant and good  
35 oil stabiliser. The weight ratio of this material to the

terpenes may be, for example, 0.01:10, 0.05:5 or 0.1:1.

Compositions of the invention may comprise various other ingredients, depending on the desired end use. It will often be desirable to ensure that the composition is topically-acceptable, e.g. for use as a hand cleanser. For use as a hand cleanser, the composition may comprise components such as propylene glycol and a water-soluble lanolin, e.g. an ethoxylated lanolin, for example the hydrophilic wax sold as Solan. It will also often be desirable to include a preservative in compositions of the invention. Conventional preservatives may be used; one which has been found to act satisfactorily is a mixture of methyl isothiazolinone and methyl chloroisothiazolinone sold under the trade name Kathon.

The predominant component of aqueous compositions of the invention is water. The amount of water is usually at least 70% w/w and often at least 75% w/w. The terpenes often provide the next greatest amount of the composition. The total amount of solubilising agents and other components may be, for example, 2 to 20% w/w of the composition.

Aqueous compositions of the invention may be prepared by mixing the terpenes and the solubilising agent together with, if desired, a small proportion of water, to prepare a thick mass. This mass is then mixed with the, or the remaining proportion of the, water, suitably while warming the components of the mixture, to obtain the desired composition.

An aqueous composition of the invention may be used to impregnate a "log" of absorbent non-woven material in conventional manner. The roll of material can then be dispensed through a conventional "wipe" dispenser, to give one-use tissues or "wipes" which are effective to remove stains from hands or material by virtue of the effective concentration of orange terpenes.

The following Examples illustrate the invention.  
All percentages are by weight.

Example 1

75 g orange terpenes, 15 g Empigen CDR10 and 15 g  
5 Polysorbate 20 were mixed to form a thick gelatinous  
mass. 150 g demineralised water were mixed in, to form a  
homogeneous composition.

Separately, 1245 g demineralised water were mixed  
with 1.5 g Kathon CG. The homogeneous composition was  
10 added to this preservative composition, and mixed well.

The resultant composition comprised 5% orange  
terpenes and 92.9% water. 100 g of this liquid were used  
to fill a container including a "log" of 100 "wipes".  
These "wipes" could be dispensed from a conventional  
15 dispensing container, for use as a hand cleanser.

Example 2

A mixture of 419.5 g demineralised water, 0.5 g  
Kathon CG, 20 g propylene glycol and 10 g Solan E50  
(comprising 50% water) was heated to 65 C. A mixture of  
20 25 g orange terpenes, 10 g glycerol monostearate and 15 g  
Cithrol 6MS was mixed and heated to 70 C. The two heated  
mixtures were mixed together well, and the product was  
cooled, with mixing, to 30 C. The product, which  
contained 83.9% water and 5% orange terpenes, could be  
25 used as a hand cleanser.

Example 3

The procedure of Example 1 was successfully  
repeated, using grapefruit terpenes rather than orange  
terpenes.

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CLAIMS

1. A composition which comprises citrus oil and a solubilising agent having a HLB value above 10.
2. A composition according to claim 1, in which the HLB value is from 12 to 18.
3. A composition according to claim 1 or claim 2, which from 0.05 to 5 parts by weight of the solubilising agent per part by weight of the citrus oil.
4. A composition according to any preceding claim, which additionally comprises a component having a HLB value of 2 to 8, to aid homogeneity.
5. A composition according to claim 4, which comprises 0.05 to 5 parts by weight of the additional component per part by weight of the citrus oil.
6. A composition according to any preceding claim, homogeneously dispersed in water.
7. An aqueous composition according to claim 6, which comprises at least 75% w/w water.
8. A carrier material impregnated with a composition according to claim 6 or claim 7.
9. A method for cleaning the hands or clothing, which comprises wiping the hands or clothing with a carrier material according to claim 6.

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# INTERNATIONAL SEARCH REPORT

International Application No PCT/GB 86/00652

1. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all)

According to International Patent Classification (IPC) or to both National Classification and IPC

IPC<sup>4</sup>: C 11 D 3/18; C 11 D 1/72; A 61 K 7/48

## II. FIELDS SEARCHED

Minimum Documentation Searched ?

### Classification System

### Classification Symbols

IPC<sup>4</sup> . C 11 D  
A 61 K

Documentation Searched other than Minimum Documentation  
to the Extent that such Documents are Included in the Fields Searched \*

### III. DOCUMENTS CONSIDERED TO BE RELEVANT<sup>1</sup>

Category *	Citation of Document, <sup>11</sup> with indication, where appropriate, of the relevant passages <sup>12</sup>	Relevant to Claim No. <sup>13</sup>
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X EP, A, 0137474 (JOHNSON & SOHN) 17 April 1985  
see page 5, lines 23-33; page 7, line 1; 1-9  
claims

X	EP, A, 0072488 (JOHNSON & SON) 23 February 1983 see the claims	1-9
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X	US, A, 4414128 (P. GOFFINET) 8 November 1983 see column 6, lines 1-14; claims	1-9
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X	US, A, 4511488 (G.B. MATTA) 16 April 1985 see column 3, lines 24-31; claims	1-9
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A	FR, A, 2262692 (COMPAGNIE FRANÇAISE DE RAFFINAGE) 26 September 1975 see page 2, lines 1-18; claims	1
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A	DE, A, 3144168 (R.C. GHEGAN) 19 May 1983 see claims	1
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#### IV. CERTIFICATION

Date of the Actual Completion of the International Search

**Date of Mailing of this International Search Report**

22nd December 1986

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III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category *	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No
A	US, A, 4330422 (S.A. TESCH) 18 May 1982 see column 3, lines 15-33; claims  -----	1

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON

INTERNATIONAL APPLICATION NO. PCT/GB 86/00652 (SA 14936)

This Annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 14/01/87

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Patent document cited in search report	Publication date	Patent family member(s)	Publicati date
EP-A- 0137474	17/04/85	JP-A- 60101198 AU-A- 3408084 US-A- 4530781	05/06/85 18/04/85 23/07/85
EP-A- 0072488	23/02/83	AU-A- 8692682 JP-A- 58038799 CA-A- 1165204 US-A- 4438009 AU-B- 549875	17/02/83 07/03/83 10/04/84 20/03/84 20/02/86
US-A- 4414128	08/11/83	None	
US-A- 4511488	16/04/85	None	
FR-A- 2262692	26/09/75	NL-A- 7502028 DE-A- 2506903 BE-A- 826056 GB-A- 1464813	01/09/75 04/09/75 27/08/75 16/02/77
DE-A- 3144168	19/05/83	None	
US-A- 4330422	18/05/82	None	

For more details about this annex :  
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